Public risk perception of relaxation of transmissible spongiform encephalopathies (tse) measures in Europe

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Abstract

The so-called "*TSE roadmap*" was published by the European Commission on 15th July 2005. The TSE roadmap suggests relaxations of BSE measures in the short, medium and long-term. According to the TSE roadmap "any relaxation of BSE measures following the scientific assessment should be initiated by an open discussion with all stakeholders and supported by a strong communication strategy" (European Commission 2005, p 5). With this message in mind, a social scientific project was designed to involve different stakeholder groups, governmental risk managers and their scientific advisors and to get their perception of the TSE roadmap and of its implications for precautionary consumer protection in five EU Member States.

This study discusses the risk perception and risk management of the Transmissible Spongiform Encephalopathies (TSEs) in Europe, exemplified by the TSE roadmap. The following question guided the international comparative study: How is TSE risk perceived by the four interviewed stakeholder groups in the five examined countries?

The risk perception of TSEs of risk managers from the ministries in charge in Belgium, France, Germany, Italy and the United Kingdom, as well as their scientific advisors and stakeholder groups, were examined. The stakeholder groups were from three different areas concerned by TSEs: farmers, consumers and the meat/food industry. The question to be addressed is if roadmapping is an adequate instrument for stakeholder involvement and for risk decision-making. The study was supported generously by a grant of the European Commission within the Network of Excellence "NeuroPrion" (FOOD-CT-2004-506579).

Introduction

„Since the beginning of the European Community, no debate [*meant is the debate about BSE and its implications for human health, the authors*] has affected the daily life of individuals as much as this one. We must not underestimate the damage that the BSE crisis is causing among the general public, in particular the questioning of the food chain; the eventual number of deaths remains an unknown quantity" (European Parliament 1997, p 22). Dating back to 1997, these words emerged when an ad-hoc inquiry of the European Parliament made a devastating appraisal of the handling of the BSE crisis by both the UK government and the European Commission (Wynne & Dressel 2001). At the time only a few of the Member States were hit by domestic BSE and hence by BSE crises (such as the UK, France, Belgium and Portugal). This situation changed in winter 2000 when Denmark, Germany and, a few months later, Spain, Italy and other EU countries discovered BSE in their domestic cattle herd. In the aftermath of those national BSE crises, the European Commission released strict regulations: The most prominent and overarching was "Regulation (EC) No 999/2001" (European Parliament & Council 2001) that provided instructions for prevention, control and eradication of certain TSEs, released 22nd May 2001 by the European Commission. Regulation 999/2001 encompassed all BSE related statutory provisions: the declaration of the BSE status, the prevention of TSEs, control and eradication of TSEs, legislations on the import and export of cattle and small ruminants (living animals, meat, meat products, but also semen and embryos), articles regarding national reference laboratories, sample taking and TSE testing. Regulation (EC) No 999/2001 was directly applicable in all EU Member States. Since then 999/2001 has been modified and changed numerous times. In most EU countries reported BSE cases peaked in the year 2001/2002 (with the exception of the UK and Switzerland).[1] After the implementation of strict regulation, and in accordance with the incubation period, the BSE figures dropped sharply in the subsequent years. In response to declining BSE figures

[1] See the OIE list of all reported BSE cases: http://www.oie.int/en/animal-health-in-the-world/bse-specific-data/number-of-reported-cases-worldwide-excluding-the-united-kingdom/

the European Commission, together with the Member States, considered relaxing measures of TSE risk regulation.

The so-called "*TSE roadmap*" was published by the European Commission on 15th July 2005. The TSE roadmap suggests relaxations of BSE measures in the short, medium and long-term. According to the TSE roadmap "any relaxation of BSE measures following the scientific assessment should be initiated by an open discussion with all stakeholders and supported by a strong communication strategy" (European Commission 2005). With this message in mind, a social scientific project was designed to involve key actors of the discourse from various fields and to get their perception of the TSE roadmap and of its implications for precautionary consumer protection in five EU Member States and at the European level. We examined the risk perception and risk communication[2] on TSEs of risk managers from the ministries in charge, as well as their scientific advisors and stakeholder groups, in Belgium, France, Germany, Italy and the United Kingdom. The stakeholder groups were from three different fields concerned by TSEs: farmers, consumers and the meat/food industry. In order to get a more complete picture we extended our study at the EU level in regard to risk management (DG SANCO) and in regard to risk assessment (EFSA).[3]

This paper will present results of the study regarding the risk perception of TSE risk regulation and its proposed amendments; conclusions on risk communication are addressed in Ru et al 2009, see also Dressel et al 2009. After a short introduction on the methodological setting of this study (Chapter 1), the TSE Roadmap and its contents (Chapter 2) and the risk perception of TSEs in Europe and reactions to the proposed amendments within the TSE Roadmap will be presented (Chapter 3). The last chapter will discuss the practicality of a roadmap process for stakeholder involvement in risk controversies such as TSEs in Europe (Chapter 4).

[2] This paper will focus on the aspect of risk perception only.
[3] The EU level will not be presented in this paper. See for this aspect: Dressel et al. 2009

1. Methodological Setting of the Study[4]

The focus of this study is an investigation of the differences in risk perception of TSEs in Europe and, in particular, of the relaxations suggested within the "TSE roadmap". Therefore, the case of TSEs were analyzed in a comparative social scientific study.

In order to examine the risk perception of TSEs of different stakeholder groups and the respective risk management options as suggested in the roadmap, a highly flexible and explorative methodological tool adaptable to the respective person and/or situation was necessary. We have therefore chosen a qualitative approach to investigate risk perception using in-depth, semi-structured interviews (Boyce & Palena 2006) and an analysis of relevant documents (literature as well as website research). More standardized methodological tools of analysis, like public polls or questionnaires, were not considered as adequate to address the problem as they hardly allow questions of "why" and "for what reasons". We have chosen to investigate the case with qualitative methods as they allow an investigation of intentions, beliefs, motifs, evaluations and justifications. Qualitative social scientific research asks for the meaning of something and tries to interpret the meaning by investigation and analysis of socially relevant data. Also we considered that the general public, the *"wo/man on the street"*, would not be aware of the TSE roadmap and its contents. Therefore, we selected different stakeholder groups who represent a broader public as well as those who are actually involved in TSE risk management in the responsible ministries and consulted scientific advisors.

Relevant literature and websites were investigated for two purposes: on the one hand, the context of TSE risk regulation for each country was analysed and re-structured. We considered it crucial to embed the results of the interviews within the given regulatory, political and TSE historical context in order to help us understand the response of the respective country. On the other hand, key actors in

[4] A description of the methods and the theoretical background as well as the guidelines applied for research can be find in detail in Dressel et al. 2008.

the relevant fields were identified by literature research, whereas others were proposed by partners of the NeuroPrion Network of Excellence.

The decision of "who" and "which country" would be considered relevant was made in a meeting of the 'Risk Control Group' of the European Network of Excellence 'NeuroPrion'. A preliminary version of the study concept was presented there and discussed with the group. We concluded that we would examine five countries: France, Italy, UK, Germany and Belgium; and that we would investigate in four domains: risk management (including advisory bodies/agencies), farmer associations, consumer associations and food industry (food and meat industry, but not feed industry). Furthermore, we agreed that we would also include the EU level TSE risk assessment (EFSA) as well as risk management (DG SANCO) in order to get a more complete picture. This choice was motivated, firstly, by the importance of countries which had the most reported BSE cases and, secondly, by the reported public outcry BSE produced in these countries.

In total 46 interviews were conducted for this study, complemented by several additional background talks with further experts in the field of the respective countries. The selection of the interviewees was based on his/her specific function and position ('experts' in regard to TSEs) within the responsible ministry or relevant stakeholder group; that is those who are responsible for TSE issues within the organization and who represent the respective organization in TSE relevant national and international meetings. Accordingly, most of the interviewees were quite senior, such as head of department within the ministry or organization, including chief veterinary officers, or the president/managing director/CEO of an organization. Depending on the responsibility for TSE issues within the examined country, the following ministries and organizations were typically consulted for interviews: the national ministries of health and agriculture, the risk assessment and food safety agencies, consumer associations, national farmers unions, breeder associations, organic farming organizations, national food industry federations and national meat (processing) industry

federations[5]. Interviews were usually conducted in the offices of the experts. Only the consumer organisations and food industry federation from France showed no interest in participating. The field work was spread over a period of 6 months and interviews were conducted in 2008.

The interviews were conducted on the basis of a semi-structured guideline which was developed for this purpose and adapted according to the respective interviewee (for example adapted in regard to contextual conditions or according to the results of the literature research of the organization). The NeuroPrion Risk Control Group agreed to the guideline and included 30 main questions regarding the risk perception of Transmissible Spongiform Encephalopathies (TSE), evaluation of implemented TSE risk regulation, in particular amendments to TSE risk regulation as suggested within the TSE roadmap, evaluation of risk communication on TSEs as well as questions regarding stakeholder involvement in public policy-making. The guideline also encompassed questions of available TSE knowledge and an evaluation of TSE research and research funding. Questions regarding the application of the precautionary principle were also addressed. The actual interview time varied considerably, from 35 minutes up to several hours, with a median of 90 minutes. Almost all interviews were recorded (if not possible, notes were taken). The interviews were then transcribed and subsequently analyzed.

The interviews were analysed with qualitative content analysis according to Philipp Mayring (1994, 2000; Gläser & Laudel 2006). Mayring's content analysis is a systematic approach guided by rules that combine an inductive development of categories with the deductive application of these categories. His approach is characterised by the fact that the focus for the analysis is not the frequency of information, but the actual content. The relevant content of the information, according to the identified categories, was extracted, evaluated, configured and subsequently interpreted. The categories that we applied were based upon the interview guideline; consequently, the guideline was a pre-defining mean for the analysis and interpretation. The aim of the systematic analysis was to reconstruct the different perspectives of the interviewees.

[5] Only organizations were named in the report, the actual interviewed experts were kept anonymous.

The report was written on the basis of the literature research and the content analysis of the interviews. The country reports as well as the EU level report were sent to the interviewees after finalization. All interviewees had the opportunity to read, review and comment on the respective country or EU report before it became part of the final report. Several replies were made by the interviewees that went into the final version of the report.

The country reports were then analyzed in a comparative study: cross-national as well as cross-stakeholders. Differences in the responses as well as similarities were identified between the countries as well as between the different stakeholder groups.

The work got further input from various discussions on the presentation of preliminary results, for example at the Prion 2008 meeting in Spain, as well as common meetings of PrioNet Canada with the NeuroPrion Risk Control Group in the context of the Prion 2008 and Prion 2009 meetings in Greece. Furthermore, results were presented and discussed in a dedicated meeting of governmental TSE risk managers from 14 countries in Winter 2009 in Brussels.

2 The TSE Roadmap and its Proposed Amendments

"We have come to the stage that amendments of certain measures could be envisaged without endangering the health of the consumer or the policy of eradicating BSE, provided that the positive trend continues and scientific conditions are in place." (European Commission 2005, p 4) Based on that reasoning, the TSE roadmap was agreed to by the EC and the Member States and published on 15th July 2005. The TSE roadmap is not a final legislative paper, but should be considered more as a "catalogue of options" for further discussion with stakeholders. In that regard, the TSE roadmap followed a new communication strategy that explicitly invited all concerned stakeholders to participate in the discussion process. This discussion process had to take place within a given time frame as amendments are suggested for short, medium and long term. In total, seven amendments

were suggested for the short and medium term (2005-2009) and four amendments for the long term (2009-2014). This time frame was also communicated from the beginning to the involved stakeholders, so that they will know when each issue is at stake for discussion.

The TSE Roadmap covers the primary measures enforced at the EU-wide level to control the epidemics of BSE and scrapie affecting cattle and small ruminant populations, respectively. The seven main topics selected within the roadmap deal with this subject. What specific rationales and ideas are behind these measures? Epidemiological studies had indicated that the exposure of calves in their first year of life to BSE infected meat and bone meal (MBM) played a major role in disease transmission. This led to a ban on the feeding of MBM to ruminants, implemented in 1988 in the United Kingdom and subsequently (1994) throughout the European Union (EU). Although the ban significantly decreased exposure, it proved in itself insufficient to eliminate the disease. Further measures were focused on the so-called Specified Risk Materials (SRM): the animal tissues in which BSE infectivity is highest, i.e. mainly brain, spinal cord, retina and distal ileum. The removal of SRM from feed and food chains in order to diminish the residual risk posed by MBM has been enforced by several countries since the mid 1990s and at the EU-wide level since 2000. Moreover, within the BSE outbreaks, the compulsory culling of all animals potentially exposed to the same risk factors (i.e. animals of the same birth cohort of the BSE case) was required to diminish other residual sources of infection. The high risk in the UK led to implementation of additional restrictions limiting the export of beef and beef products. Parallel to the risk management measures, a comprehensive surveillance system for BSE (and on a sample base for small ruminants) was put into place in the European Union (EU) in 2001. The surveillance system was based on clinical surveillance as well as systematic rapid testing of at-risk animals over 24 months of age (emergency slaughter and animals that died on the farm) and healthy slaughtered cattle over 30 months of age. This system required an enormous surveillance effort (i.e. about ten million cattle tested per year). Finally, a system was developed which allowed risk management interventions to be proportionate to risk by categorizing countries

based on their differing BSE risk. The first categorization approach was implemented by the Scientific Steering Committee (SSE) of the EU. This was much more complex and laborious compared to the successor system proposed by the OIE, the international animal world health organization. While the bulk of the quoted measures effectively controlled the epidemic and determined a clear decline in the disease trend, these same measures also looked to be disproportionate and in need of some revision by the mid 2000's: the idea of the TSE Roadmap emerged and was put forth.

Short and medium term amendments:[6]

1. *Specified Risk Material*: The strategic goal is "to ensure and maintain the current level of consumer protection by continuing to assure the safe removal of SRM but modify list/age based on new & evolving scientific opinion".
2. *Feed Ban*: The strategic goal is "a relaxation of certain measures of the current total feed ban when certain conditions are met".
3. *Monitoring programmes*: The strategic goal is "to reduce the numbers of tests of bovine animals and at the same time continue to measure the effectiveness of the measures in place with better targeting of surveillance activity."
4. *Categorization of countries according to their BSE risk*: The strategic goal is a "simplification of the categorisation criteria and conclusion of the categorisation of the countries before 1 July 2007."[7]
5. *Review of culling policy with regards to TSEs in small ruminants*: The strategic goal is a "review and relaxation of the eradication measures for small ruminants taking into account the new diagnostic tools available but ensuring the current level of consumer protection."

[6] For the following: The TSE Roadmap: http://ec.europa.eu/food/food/biosafety/bse/roadmap_en.pdf

[7] This amendment was already put in place at the time when the interviews were conducted. Prior to that modification towards a simplified categorization by the World Organisation for Animal Health (Organisation Mondiale de la Santé Animale, OIE), the Scientific Steering Committee of the European Union was responsible for determining and catergorization of the countries according to their BSE status, the so-called geographical BSE Risk Assessment (GBR). Between SSC and OIE the EFSA was transitionally responsible for the categorization of the countries.

6. *Cohort culling in bovine animals*: The strategic goal is "to stop the immediate culling of the cohorts."
7. *UK restrictions*: The strategic goal is "to discuss the lifting of the additional restrictions on exports of beef and beef products from the UK if the present conditions are complied with."[8]

Long term amendments: The strategic goal of the long term amendments is "to modify measures in line with current technology and newly evolving scientific knowledge", with focus on the following topics:

1. Surveillance
2. Specified Risk Material
3. Certification of Herds
4. Genetic Resistance in Goats

The TSE roadmap also suggests "alternative scenarios if the positive trend does not continue. Three different scenarios are considered: "non-favourable trend of BSE in certain Member States", the large scale incidence of "BSE in small ruminants" or confirmed cases of "Chronic Wasting Disease (CWD) in cervids".

The aim of this project was to gather the risk perception of the concerned public, as well as the risk managers and their respective advisors, in regard to the proposed amendments: What does the public think about these relaxation measures? Are the amendments considered to be appropriate or does the public feel the contrary? What are judged to be the most appropriate measures? Which measures appear to be more sensible, which less sensible? Where are there differences between the risk perception of different stakeholder groups *within* one country and *between* the examined Member States? The following analysis will give evidence of the differences and similiarities which we have identified.

[8] This amendment was transformed and the UK restrictions lifted in 2006.

3. Risk Perception of TSE in Europe

General speaking, risk management, risk communication and risk perception are three processes that interact. The risk management measures are supposed to be communicated to the public and hence influence the risk perception of the general public. Interest in public risk perception has raised considerably since the 1980's – a phenomenon which cuts across all industrialised countries. Frequently, the increased interest in risk perception among the public is interpreted as an indicator of the crisis of late, or recursive, modernity, whereby society, faced with unintended side effects and fall-outs, increasingly questions the capabilities of risk management (Beck 1986) and (Adam 1995). The BSE crisis is only one example of this. Against this background, the findings on risk perception among the populace become increasingly significant. However, the criticism has to be raised that, although theoretical awareness on the part of risk management of the importance of risk perception research has risen dramatically, in actual practice the findings of perception research are neither utilised in a systematic and consistent manner nor systematically tied into the decision-making process in risk management (Dowler et al. 2006), (Renn & Benighaus 2006).

There are a number of approaches to probe into social risk perception. Depending on their origins, they tend to be inspired by social psychology, cognition psychology, anthropology or sociology and orientated accordingly. Slovic says that "*There is no such thing as 'real risk' or 'objective risk*'." (Slovic 1992). There are differences among people about risk perceptions and there are determinants of risk perceptions.[9] Experts perceive risks differently than non-experts. In evaluating a risk, experts are (supposedly) guided by the available scientific and technological knowledge base, the so-called facts. The perceptions among the public, on the other hand, may be only marginally informed by these facts and they frequently don't have the right knowledge to 'translate' those facts. Last but not least, the media play a decisive role in what is perceived as risk by the public. A study on BSE demonstrated that the peoples of Germany, Finland, Italy and the UK arrived at different risk conceptualizations

[9] For an elaborate review of determinants of risk perception: see Renn 2008, in particular chapter 4.

due to the influence of their national media (Bauer et al. 2006). In order to facilitate effective risk communication, it is essential to arrive at an improved understanding of the risk perceptions of the public and its stakeholders in regard to BSE and other TSEs.

In the following section a comparison of the risk perceptions and the evaluations of risk management measures of the stakeholders, risk managers and scientific advisors of the five countries will be given. The following sub-chapter describes some more general assessments of (1) TSE risks, (2) general reactions towards the TSE roadmap and (3) a general assessment of the most important measurements currently in place that we found in the five examined countries.

3.1 Assessment of TSE risks

When asked about their TSE risk assessment we found no distinguishable differences between the five examined countries. All interviewees in all countries agreed that the risks from BSE and other TSEs have diminished – a fact that was ascribed to adequate risk management measurements and their strict enforcement. A representative from the German meat industry considered the risk resulting from BSE as “insignificant”. The current BSE risk “has not been zero, but it is as close to zero as you can get” – this view of a scientific advisor to the UK government was quite representative for all stakeholder groups in all countries. Although basically all consumer representatives in all countries agreed on that, too, an interviewee from a German consumer organisation stressed that BSE as such is still a risk to humans due to the fact that several scientific questions have not been answered yet. An Italian cattle breeder representative mentioned that the BSE crises have stimulated efforts to enhance food safety.

3.2 General Reactions towards TSE Roadmap

Risk managers in all countries (except Italy, where awareness and knowledge of the TSE roadmap was very limited) replied that they appreciated the TSE roadmap as a worthwhile initiative by the European Commission (EC) that sufficiently covers all concerned areas. TSE risk managers of all countries declared that they consider relaxation of current TSE risk regulation a necessary step forward, as the declining TSE figures have shown that the measures have become increasingly disproportionate. Belgium risk managers mentioned in the interview that cost-benefit considerations are central for any decision regarding relaxation of current legislation. They continued that, whereas the costs for TSE regulation were absolutely justified in the past, a new prioritization is obviously needed. Particularly in the UK, but also in German and in French interviews, the idea of science-based or risk-based decision-making was prominent. They concluded that, despite relaxation of the current regulation, the precautionary principle would still be applied. Contrary to the precautionary principle where scientific knowledge is typically insufficient, French risk managers suggested in the interviews that the current level of knowledge would be sufficient to justify a relaxation of current measures. During the interview, representatives of the UK meat industry framed this idea as a move towards a system of proportionality supported by risk-based decisions. The TSE roadmap was considered by the interviewee of the UK meat industry to be an excellent example of a successful tool that has scientific process at the centre of any deliberation in regard to modifying risk regulation. *Stakeholders* from agriculture and industry in Germany, Belgium and the UK stated in interviews that they very much welcomed suggestions made by the TSE roadmap as timely and sufficiently based on science. Apart from the interviewee of the French meat industry that showed some apprehension in regard to consistency of certain aspects of the document, all other French stakeholders reacted positively to the ideas of the roadmap. In Italy, knowledge of the TSE roadmap and its envisaged changes appeared not to be broadly distributed. At the same time, several general reservations in Italy were raised in the study, in particular about whether control of the disease can be safeguarded once the regulations change. The German and UK meat industry, as well as Italian farmer's

representatives, stressed that any amendment to current legislation should be accompanied by a strong and transparent communication strategy directed towards consumers. The latter was also emphasized in all interviews with consumer representatives in all countries.

The reactions of the consumer associations showed a different pattern. In all the examined countries interviewees from consumer organisations replied that, in their view, the general public are most likely unaware of the TSE roadmap. The representatives from consumer associations we interviewed knew the TSE roadmap only because of their professional involvement, but would be, otherwise, unaware of it as well. German consumer representatives tended to stress that the regulations of the past led to a containment of the risk. They hence stressed that the measurements should be kept in order to maintain the low BSE figures and keep the current level of consumer protection. Consequently, only minor relaxations of current regulation were endorsed by them. Italian consumer representatives stated similar reservations, but from an even more concerned standpoint; they told us that they were afraid that, by introducing relaxation measures, control of BSE and other TSEs would no longer be guaranteed, hence the degree of food safety might suffer. UK consumer representatives stressed again the importance of sufficient knowledge, they emphasized in the interviews that if scientific knowledge would conclusively support relaxation measures, consumers would go along with it.

3.3 Most Important Measures Currently in Place

Asked which measures currently in place were seen as most important, the removal of specified risk material (SRM) and the feed ban were seen by all interviewees in all examined countries as most important. Having said this, which of these is seen as most important varies according to the country. Typically, SRM removal was considered to be the core measure for the protection of public health, whereas the feed ban was considered to be the core measure for the protection of animal health, for example by risk managers in Germany and the UK. In Belgium and France, both measures were seen as key, but the majority of interviewed stakeholders put some emphasize on the removal of SRMs.

Italy turned out to be different as all interviewed risk managers, scientific advisors and all stakeholders stressed that they consider the feed ban to be the most fundamental tool for risk regulation, whereas SRM removal was evaluated by them as important but possibly subject to modification. Contrary to the risk managers, the representatives of the UK meat industry also stressed control of the feed ban as the most important measure. The surveillance regime was perceived by Belgium, French, Italian and UK governmental risk regulators in our study as a useful tool to gain knowledge about the epidemic, but was not considered (in contrast to Germany) to be a measure necessary for consumer protection .

3.4 Evaluation of Specific Measures Suggested Within TSE Roadmap

After the more general assessments we asked all interviewees for their evaluation of specific aspects of the measures intended for relaxation within the TSE roadmap.

3.4.1 Specified Risk Material (SRM)

> *Specified Risk Material*: The strategic goal is "to ensure and maintain the current level of consumer protection by continuing to assure the safe removal of SRM but modify list/age based on new & evolving scientific opinion".

We found a wide range of opinions within the examined countries in regard to the SRM legislation. All interviewees agreed (except Italy) that they consider the SRM control as the core measurement to safeguard public health in regard to TSE risks.

All UK interviewees were united by their request for strong scientific evidence and very careful considerations for any amendment under consideration. All interviewed UK representatives agreed that, if scientific evidence is not conclusive, it would be advisable to stick to the legislation as it is now.

In France, responses to the evaluation of the potential relaxation of SRM material varied considerably in the interviews. Risk managers in France, supported by their scientific advisors, were much more in favour of amendments, while all other French stakeholders consulted were generally against modifications, including representatives of farming and meat industry associations.

We found the Belgians more reluctant than any other country to allow any relaxation of the removal of SRMs. Only the representatives of the meat industry hesitantly agreed on amendments, provided that the current level of consumer protection can be maintained as a necessary precondition. Belgium consumer representatives tended to argue strictly against any relaxation of the current SRM removal practice.

In Germany, as in France, we didn't find a congruent response by the various stakeholders: Whereas the one interviewee of the German meat industry described the current legislation as "exaggerated" and in need of change, consumers did not feel the need to modify anything regarding this core measure at the moment. The interviewee of the German risk management was in favour of modest relaxations of SRM removal, whereas the interviewees representing the German farmers and breeders did not argue for amendments to this core measure. The latter emphasized, instead, their wish to have the same regulation applied in Germany as elsewhere. (The German legislation on TSE is still in some regards more rigorous than in other EU countries, which was complained about in particular by the meat industry and farming industry.)

In the Italian case study, as already mentioned, risk managers as well as all other stakeholders clearly focused on the feed ban as the most important measure in place. Not surprisingly, Italian risk managers interviewed did not have strong caveats in regard to relaxation of SRM removal.

3.4.2 Feed Ban

Feed Ban: The strategic goal is "a relaxation of certain measures of the current total feed ban when certain conditions are met".

In Italy all interviewees were unified in assessing the risk regulation tool 'feed ban' as the most important measure of all. This position clearly distinguished them from all other countries examined. The feed ban was considered in Italy as *the* essential tool, with no room for any relaxation to be seen, as the fear of a new epidemic was still strong there. On the contrary, according to Italian interviewees, the feed ban should be strictly and rigorously enforced and meat industry products should be continuously monitored.

No consistent response emerged in Belgium: risk managers consulted were less keen on relaxations (theoretically yes, but practically no, as it appears impossible to sufficiently control a relaxed feed ban with current methods). Belgium consumers' representatives voted unanimously against relaxations of the feed ban, whereas other stakeholders generally agreed on relaxations or even directly asked for them, like the interviewed Belgium farmers.

Similarly in France: The risk managers examined tended to be wary of relaxing the feed ban, whereas interviewees representing French meat industry and farmers, on the contrary, forcefully asked for them. Like their German counterparts (see below), conventional French farmers used the same argument: Once negatively tested via active surveillance, the meat and bone meal can definitely be used for feeding farm animals, except ruminants.

No consistent position were found in Germany: Risk managers, like some members of the farming community and meat industry consulted, considered potentially relaxing the *total* feed ban – provided that intra-species recycling and other "unnatural feeding practices" (interviewee from a German farming association) would be abolished forever. Representatives from German farming organizations mentioned that, due to the active surveillance system, negatively tested offal from the slaughterhouse should be considered suitable for consumption by other omnivores. An interviewee representing an important German organic farming organization took yet another position: The current control system for feed was considered insufficient to allow relaxations of the total feed ban. German consumer associations consulted were more strictly against amendments, as they don't

want “too much changed” in regard to the feed ban. If changes should be implemented at all, they need to be justified by good scientific evidence.

In the UK, all interviewees wanted to maintain the feed ban – at least in theory and for different reasons. In practice, good scientific evidence and a sophisticated communication strategy toward the general public would change this attitude - the underlying assumption of the UK interviewees - as there appears to be no general reluctance to relaxing the feed ban, provided that certain standards are always kept. They continued that, for those animals that are verifiably not susceptible to TSEs, such as pigs and poultry, the feeding of animal protein could be reconsidered. Having said that, the UK consumers association involved vividly expressed their reluctance to accept any feeding practice “against nature” which has “horrified” the UK public in the past.

3.4.3 Surveillance activity

Monitoring programmes: The strategic goal is “to reduce the numbers of tests of bovine animals and at the same time continue to measure the effectiveness of the measures in place with better targeting of the surveillance activity.”

All risk managers involved in all examined countries agreed on the importance and necessity of further surveillance activity, but for different reasons: Surveillance activity was regarded as a tool to monitor the epidemiology of the disease or to cross-check other regulatory measures – a view that was given in all countries, except Germany. Contrary to all others, German risk managers considered surveillance as a tool for food safety and not just an epidemiological tool. This latter perspective was also shared by German and UK consumer representatives.

With a few differences of opinion, all risk management interviewees included and most stakeholder groups examined would, more or less, welcome relaxations of the current surveillance activity – including UK and German consumer representatives. Without exception, all industrial

representatives supported relaxation of the present monitoring system. Only Italian consumers tended to consider a slight extension in regard to atypical cases of TSE (see below).

The current surveillance system was regarded by most as "disproportionate" when faced with the decreased BSE figures in the entire European Union. In particular, the age limit for routine testing in the abattoirs should be lifted in order to reduce the current rate of TSE tests and to save money. This was the congruent position that we found in the interviews with all risk managers in all countries examined.[10]

A slightly different position was raised by representatives of UK farmers and breeders who appraised the surveillance system as a very important tool to keep consumer confidence up. They emphasized that, as when the EU-wide surveillance system replaced the Over Thirty Months Scheme (OTMS)[11] in the UK a few years ago, relaxation of the current system should be done extremely cautiously. Having said that, UK farming organizations regarded the sharp decline of BSE cases in the UK as evidence that a moderate relaxation of this measure should be considered justified.

All interviewees in all countries stressed that any relaxation should be accompanied by an appropriate communication strategy.

With the exception of the Italian consumers and risk managers consulted, all other interviewees agreed that routine testing should not be extended in regard to atypical forms of TSEs. Atypicals were regarded as scientifically interesting, but not a risk to humans as they are already covered by current risk reducing measures and, therefore, do not deserve special regulatory treatment – this view was shared by all interviewees. Italian consumer's representatives and risk managers, on the contrary, made clear in the interviews that they would not exclude the idea of a moderate extension of the surveillance regime in order to capture the atypicals, too.

[10] It must be kept in mind that the interviews were conducted at a time when the EC and its Member States were actually in the process of lifting the age limit for BSE testing since transposed into law: the age limits for BSE testing were raised to 48 months in 2009 in the European Union.

[11] OTMS meant that all cattle of 30 months of age and older were not slaughtered, but culled and the meat destroyed in order to avoid any human consumption. The OTMS was a UK-only measurement.

3.4.4 Categorization of Countries and the Role of OIE

Categorization of countries according to their BSE risk: The strategic goal is a "simplification of the categorisation criteria and conclusion of the categorisation of the countries before 1 July 2007."

Prior to the suggested amendment, the categorization of BSE countries was based on the BSE risk assessment of the EU Scientific Steering Committee (SSC) (see footnote 4).

In most of the countries in our study, only risk managers appeared to be knowledgeable enough to have an opinion on the new OIE categorization system, whereas most other stakeholders stated that they were not familiar (enough) with these changes, with the exception of a few German and UK stakeholders who had views on the new OIE system.

Italian and Belgium risk managers in our interviews, for example, supported the idea of a simplified system and the OIE as an adequate organization to perform this task. In particular, the fact that the OIE is an international organization which enjoys a good reputation within the veterinarian and regulatory communities worldwide was mentioned by them.

Although French risk managers were, when asked, supportive of the new OIE system, their scientific advisors judged the new categorization approach as not fully scientifically sufficient compared to the SSC assessment of the geographical BSE risk status (GBR).

In the UK, stakeholders' views varied: On the one hand, some interviewees raised several reservations regarding the new system, ranging from being scientifically insufficient to being politically motivated. On the other hand, the change already implemented was considered by others as neutral (such as for UK risk management). Only the UK meat industry and most farmer representatives explicitly expressed their approval for the new system and for the OIE.

As in the UK, German stakeholders showed, in our study, no consistent viewpoint and displayed similar reservations – though from different stakeholder groups. UK and German risk regulators (and their scientific advisors) showed similar reservations in regard to both the new system and the new

organizational background. The "old" EU system, where the geographical BSE risk status was assessed by an independent EU Scientific Steering Committee (SSC), was considered to be much more transparent compared to the current OIE system. However, it was also mentioned by German scientific advisors of the government that the OIE enjoys more international trust and recognition than the SSC – that was regarded by them as useful for the acceptance of the results of the OIE assessment. Contrary to the UK, representatives of the German meat industry raised clear doubts regarding the new system and also in regard to the OIE: The new OIE system was described by them to be much more simplistic compared to the old SSC system. Furthermore, the OIE appeared to one German meat industry interviewee as an opaque circle of actors from vested interests – and he considered this potentially problematic in the future. Contrary to the meat industry, German farmers' representatives very much welcomed the new movement and the shift of responsibility they appreciated the OIE as an adequate organization to perform this task.

Hardly any of the consumer stakeholder group or industrial stakeholders involved in France, Belgium or Italy was aware of the new system and its implications. Hence no opinions were given in regard to that, nor in regard to the OIE as the new responsible organization. Interviewees representing consumers in all countries just stated that simplification (as the ultimate objective for the amendments made here) appeared desirable to them in general.

3.4.5 Review of Culling Policy in Regard to Small Ruminants

Review of culling policy with regards to TSEs in small ruminants: The strategic goal is a "review and relaxation of the eradication measures for small ruminants taking into account the new diagnostic tools available but ensuring the current level of consumer protection."

The culling policy on small ruminants (such as goats or sheep) was not particularly relevant for most of the contacted stakeholders and risk managers in the countries examined, apart from France and

Belgium. In none of the countries did industry or consumer representatives voice an opinion on this issue.

French risk managers showed no consistent response in regard to the culling policy of small ruminants, as some of them agreed on the necessity of a review of culling policy, whereas others disagreed. But all agreed that they consider the current level of knowledge on small ruminants as insufficient, compared to BSE in cattle. According to them that should be regarded as worrying, as scrapie has not been excluded as the cause for the emergence of the BSE agent in cattle. The French risk advisors stressed that they would like to push the idea that, in light of new scientific evidence, measures on small ruminants urgently need a new risk assessment.

Like in France, Belgium risk managers have shown no consistent opinion in this matter. They argued that they found the whole sector problematic and not fully under control.

3.4.6 Cohort Culling in Cattle

Cohort culling in bovine animals: The strategic goal is “to stop the immediate culling of the cohorts.”

Belgium, French and UK risk managers interviewed did not agree with a relaxation of the cohort culling in cattle, although for different reasons: Belgium and French risk regulators simply could not see scientific evidence to suggest the abolition of cohort culling in cattle. Other Belgium stakeholders included in our study, such as consumers associations, agreed upon potential relaxation of the cattle cohort culling scheme. Representatives of French farmers and breeders and French risk managers did not see a need for relaxation of culling, but for differing reasons than their risk managers. On the one hand, they said that only very few animals would be effected by this measure. On the other hand, cohort culling would keep consumers' confidence in the quality of beef. Having said that, French farmers' representatives showed no understanding of why negatively tested animals (via the active

surveillance system) should not be considered suitable for eating. Interviewees representing the Belgian meat industry, on the contrary, would support the idea of relaxing the cohort culling policy. The situation in the UK is different from all other countries as they have had the OTM scheme in the past (see above, footnote 8) where all cattle 30 months of age and above were killed, but no cohorts. When they converged with the EU system they had to deal with the problem of cohort culling as one of the legal requirement of EC 999/2001. After the abolishment of the OTMS, cohort culling was one of the measures regarded by risk managers as restoring consumer confidence. Hence, according to the UK interviewees, there is no need for change here from a UK perspective.

Contrary to all other EU Member States, Germany decided upon the abolishment of cohort culling in cattle in 2007 covered by the TSE roadmap.[12] Since then all cohort animals within a herd where BSE was identified are kept under veterinary surveillance until the end of their productive life, only then are they culled. According to risk managers consulted, this step was requested by all German stakeholders, at least within the agricultural domain, and it has been judged positively since its introduction. A German consumer representative even showed surprise as to why no other EU Member State has abolished cohort culling in cattle. According to the consumer interviewee, cohort culling would not increase consumer protection hence there is no need to maintain that measure. German farming representatives even asked for a further relaxation: to abolish culling of cattle after their productive life: Cohort animals should be treated as all other cattle and once tested negatively to BSE in the abattoir there is no need to keep their meat out of the food chain (see, for a similar response, the French farmers' representative above).

3.4.7 UK Restrictions

UK restrictions: The strategic goal is "to discuss the lifting of the additional restrictions on exports of beef and beef products from the UK if the present conditions are complied with."

[12] This means that the German government had officially applied for the abolishment of cohort culling in the framework of TSE Roadmap and got approval for their request.

From a UK standpoint it appears clear that the lifting of the UK ban was considered top priority by risk managers as well as others and when the ban was actually lifted it was highly welcomed. All interviewed UK stakeholders, including consumers, were relieved and very positive towards the lifting of the ban and of, therefore, becoming a full member of the European Union regime again. This amendment in the context of the TSE roadmap was considered to be top priority for TSE policy-makers in the UK. Unsurprisingly, the day of the UK re-entry into the international beef market and the lifting of the UK ban (May 2006) was called a "red letter day for farmers" by UK agricultural representatives.

Contrary to the UK position, French risk manages as well as all other stakeholders interviewed made clear that they fully disagreed on the lifting of UK restrictions. Only AFFSA, the scientific advisors of French risk management, supported the lifting of the UK ban as there are no scientific objections against the re-entry of the UK. French risk managers explained that they, historically, lack confidence in the UK control and enforcement system (not only in regard to the UK management of BSE, but also, for example, in regard to their handling of the foot and mouth disease).

Belgium stakeholders tended to agree on this amendment in regard to the UK, even with some skepticism towards the UK regulatory system. Belgium consumer and farming representatives remarked that the UK is still requested to prove that they are in full control of the disease.

In Germany no objections were raised at all against lifting the UK ban. It was taken for granted by all German interviewees that, as long as all given requirements are met, there is no need to exclude the UK any longer or to treat UK meat and cattle differently. On the contrary, UK meat and beef producers should be treated the same as anyone else in the EU.

3.4.8 Long-Term Amendments: Surveillance, SRM, Certification of Herds, Genetic Resistance in Goats

Long term amendments: The strategic goal of the long term amendments is "to modify measures in line with current technology and new evolving scientific knowledge", with the focus on the following topics: (1) Surveillance; (2) Specified Risk Material; (3) Certification of Herds; (4) Genetic Resistance in Goats.

All stakeholders in all countries stressed the necessity of solid scientific knowledge as the basis for any amendments suggested. Only a few explicit ideas of the long-term amendments of the TSE roadmap were considered by some stakeholders, in particular by risk managers consulted. The interviewed UK risk managers asked for amendments on a "proportionate level" in the long term, for example in regard to relaxations of the surveillance system. The herd certification was not regarded as a priority by them; genetic resistance in goats, instead, was regarded as important and helpful for the UK.

Contrary to UK risk managers, the scientific advisor for German risk management, and also representatives from German cattle breeders, raised strong objections in the interview to the breeding of genetically resistant goats as potentially counteracting biodiversity. Having said that, goat husbandry has only limited economic meaning in Germany.

Italian risk managers and breeders, in turn, were very positive regarding the possibility of managing TSE risks in small ruminant population by means of herd certification or genetic resistance.

4 Roadmapping as an Appropriate Tool to Involve Stakeholders in Risk Controversial Topics?

As already mentioned above, the crucial thing about risk perception is the implementation of its findings into risk governance. A roadmap approach is an inclusive approach to risk governance and

an attempt to take into account different risk perceptions and perspectives of stakeholders in order to arrive at a more socially robust decision making process and enhanced trust in risk management.

We also addressed the issue of the meaning and practicality of the TSE Roadmap for stakeholder inclusion and improved risk decision-making with our interviewees. The roadmap was considered to be an excellent and suitable way of coming up with robust decisions via consultation – this was the general response we received in all countries by all stakeholder groups. The vast majority of our examined stakeholders found the given time frame of the roadmap useful as it allows them to plan their work. The most important observation we made, through all the stakeholders in all the countries, was that stakeholders want to see "the science behind" any decision in regard to amendments to TSE regulation. In particular, consumer representatives in our study demanded that the "science behind" should be explained in a language that can be understood by the public, free of jargon. As case control measures are pulled back it would be vital to check compliance and to make sure that any breaches are carefully and immediately reported, as a cover-up would not work and would only lead to public mistrust. This standpoint was stressed by representatives of both consumer and farmer associations. The TSE roadmap was considered to be a compromise between general ideas and technical data. As such, it was considered comprehensible for almost all stakeholder groups, as long as they have expert knowledge available. Having said this, it was made clear amongst others by many, particularly by consumer representatives, that the TSE roadmap in its current form would not be comprehensible to the broader public.

Not all stakeholders who should be concerned by the TSE roadmap were actually aware of the existence of the roadmap. The most likely explanation for this is the fact that not all stakeholder groups informed by the European Commission via their representation in Brussels have forwarded the information to the national level. It was therefore requested by some interviewees that the EC should consider effective ways to ensure that the information is equally distributed to all concerned stakeholders on the Member State level.

Conclusions:

The risk of TSEs is clearly on the decline in Europe due to the application of risk management measures in the past which effectively contained the risk – this view was shared amongst all stakeholders in the examined European countries. Additionally, relaxation measures to the current TSE risk regulation were seen as appropriate by all stakeholders providing that all amendments are scientifically based.

The SRM control and the feed ban were considered by all countries as the most important measures in regard to TSE risk regulation. Any relaxation of these measures should be considered extremely carefully, based on solid scientific knowledge and accompanied by a strong communication strategy towards stakeholders, but also towards to the general public.

The surveillance system is seen as another important measure, although most interviewees regarded the testing regime as a mere tool for the epidemiological monitoring of the disease. In that respect the active surveillance system should be kept for some years, although the current design of the regulation could be modified, that is relaxed. Meanwhile, the latter has been implemented and the age limit for testing lifted, both of which were met by the approval of all examined stakeholder groups. The TSE Roadmap process was welcomed as an adequate tool to involve stakeholders in a field of risk controversy.

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